	Errors Corrected by the STIC Systems Branch CRF Processing Date: 2/26/2002
* *	CRF Processing Date: C/Co/2000
Serial Nun	ASCII to ASCII
	based the margins in cases where the sequence text was "wrapped down to allow the margins in cases where the sequence text was "wrapped down to allow the se
	dited a format error in the Current Application Data section, specifically:
	the actual current number. The number inputted by the
	anticant was I I lillo prior oppriore
	Added the mandatory heading and subheadings for "Current Application Data".
	The applicant spelled out a number instead of Sequences" field. The applicant spelled out a number instead of
	Changed the spelling of a mandatory field (the headings or subheadings), Specimenty
	Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:
	Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:
لسيسا	Corrected subheading placement. All responses must be on the same line as each subheading. If the conficent placed a response below the subheading, this was moved to its appropriate place.
П	Inserted colons after headings/subheadings. Headings edited included:
	Deleted extra, invalid, headings used by an applicant, specifically:
	Deleted: non-ASCII "garbage" at the beginning/end of files; secretary initials/filename at end of file; page numbers throughout text; other invalid text, such as
П	Inserted mandatory headings, specifically:
	Corrected an obvious error in the response, specifically:
	Edited identifiers where upper case is used but lower case is required, or vice versa.
	Edited identifiers where upper cases Corrected an error in the Number of Sequences field, specifically:
لنا	is and by the applicant. All occurrences had to be deleted.
	to add the stop codon in amino acid sequences and adjusted the (A) congular to
	due to a Patentin bug). Sequences corrected:
ď	Other: Seg 3-insuted Land returni
	The basis corrections must be communicated to the applicant in the first Office 3/1/95

*Examiner: The above corrections must be communicated to the applicant in the first Office 3/1/95
Action. DO NOT send a copy of this form.



OTPE

RAW SEQUENCE LISTING DATE: 02/26/2002 PATENT APPLICATION: US/10/053,530 TIME: 12:23:09

```
1 <110> APPLICANT: Ledbetter, Jeffrey
        Hayden-Ledbetter, Martha
3 <120> TITLE OF INVENTION: Binding Domain-Immunoglobulin Fusion Proteins
4 <130> FILE REFERENCE: 390069.401
5 <140> CURRENT APPLICATION NUMBER: US/10/053,530
6 <141> CURRENT FILING DATE: 2002-01-17
7 <150> PRIOR APPLICATION NUMBER: US 09/765,208
8 <151> PRIOR FILING DATE: 2001-01-17
9 <160> NUMBER OF SEQ ID NOS: 38
10 <170> SOFTWARE: PatentIn version 3.0
12 <210> SEQ ID NO: 1
13 <211> LENGTH: 812
14 <212> TYPE: DNA
15 <213> ORGANISM: Artificial Sequence
16 <220> FEATURE:
17 <223> OTHER INFORMATION: SYNTHETIC MOUSE SCFV FUSION GENE
18 <221> NAME/KEY: sig_peptide
19 <222> LOCATION: (13)..(78)
20 <221> NAME/KEY: V_region
21 <222> LOCATION: (79)..(396)
22 <223> OTHER INFORMATION: light chain variable region for anti-CD20 scFv
23 <221> NAME/KEY: misc_feature
24 <222> LOCATION: (397)..(444)
25 <223> OTHER INFORMATION: asp-gly3ser(gly4ser)2-ser peptide linker
26 <221> NAME/KEY: V_region
27 <222> LOCATION: (445)..(808)
28 <223> OTHER INFORMATION: heavy chain variable region for anti-CD20 scFv
29 <400> SEQUENCE: 1
         aagcttgccg ccatggattt tcaagtgcag attttcagct tcctgctaat cagtgcttca
                                                                                 60
30
         gtcataattg ccagaggaca aattgttete teccagtete cagcaateet gtetgeatet
                                                                                120
31
         ccaggggaga aggtcacaat gacttgcagg gccagctcaa gtgtaagtta catgcactgg
                                                                                180
32
        · taccagcaga agccaggatc ctccccaaa ccctggattt atgccccatc caacctggct
                                                                                240
33
         tetggagtee etgetegett eagtggeagt gggtetggga cetettaete teteacaate
                                                                                300
34
         agcagagtgg aggctgaaga tgctgccact tattactgcc agcagtggag ttttaaccca
                                                                                360
35
         cccacgttcg gtgctgggac caagctggag ctgaaaggtg gcggtggctc gggcggtggt
                                                                                420
36
         ggatctggag gaggtgggag ctctcaggct tatctacagc agtctggggc tgagctggtg
                                                                                480
37
         aggcctgggg cctcagtgaa gatgtcctgc aaggcttctg gctacacatt taccagttac
                                                                                540
 38
         aatatgcact gggtaaagca gacacctaga cagggcctgg aatggattgg agctatttat
                                                                                600
 39
         ccaggaaatg gtgatacttc ctacaatcag aagttcaagg gcaaggccac actgactgta
                                                                                660
 40
         gacaaatcct ccagcacagc ctacatgcag ctcagcagcc tgacatctga agactctgcg
                                                                                720
 41
         gtctatttct gtgcaagagt ggtgtactat agtaactctt actggtactt cgatgtctgg
                                                                                780
 42
                                                                                812
          ggcacaggga ccacggtcac cgtctctgat ca
 43
 45 <210> SEQ ID NO: 2
```

RAW SEQUENCE LISTING

DATE: 02/26/2002 TIME: 12:23:09

PATENT APPLICATION: US/10/053,530

Input Set : N:\Crf3\02132002\J053530.raw
Output Set: N:\CRF3\02262002\J053530.raw

```
46 <211> LENGTH: 1518
47 <212> TYPE: DNA
48 <213> ORGANISM: Artificial Sequence
49 <220> FEATURE:
50 <223> OTHER INFORMATION: SYNTHETIC MOUSE HUMAN CHIMERIC FUSION GENE
51 <221> NAME/KEY: misc_feature
52 <222> LOCATION: (13)..(807)
53 <223> OTHER INFORMATION: MURINE ANTI-HUMAN CD20 scFv
54 <221> NAME/KEY: C_region
55 <222> LOCATION: (808)..(1513)
56 <223> OTHER INFORMATION: HUMAN IGG1 Fc TAIL, WILD TYPE HINGE, CH2 AND CH3
57 <400> SEQUENCE: 2
         aagcttgccg ccatggattt tcaagtgcag attttcagct tcctgctaat cagtgcttca
                                                                                60
58
         gtcataattg ccagaggaca aattgttctc tcccagtctc cagcaatcct gtctgcatct
                                                                               120
59
         ccaggggaga aggtcacaat gacttgcagg gccagctcaa gtgtaagtta catgcactgg
                                                                               180
60
         taccagcaga agccaggatc ctcccccaaa ccctggattt atgccccatc caacctggct
                                                                               240
61
         tetggagtee etgetegett eagtggeagt gggtetggga cetettaete teteacaate
                                                                               300
62
         agcagagtgg aggctgaaga tgctgccact tattactgcc agcagtggag ttttaaccca
                                                                               360
63
         cccacgttcg gtgctgggac caagctggag ctgaaagatg gcggtggctc gggcggtggt
                                                                               420
64
         ggatctggag gaggtgggag ctctcaggct tatctacagc agtctggggc tgagctggtg
                                                                                480
65
         aggcctgggg cctcagtgaa gatgtcctgc aaggcttctg gctacacatt taccagttac
                                                                                540
66
         aatatgcact gggtaaagca gacacctaga cagggcctgg aatggattgg agctatttat
                                                                                600
67
         ccaggaaatg gtgatacttc ctacaatcag aagttcaagg gcaaggccac actgactgta
                                                                                660
68
         gacaaatct ccagcacagc ctacatgcag ctcagcagcc tgacatctga agactctgcg
                                                                                720
69
         gtctatttct gtgcaagagt ggtgtactat agtaactctt actggtactt cgatgtctgg
                                                                                780
70
         ggcacaggga ccacggtcac cgtctctgat caggagccca aatcttgtga caaaactcac
                                                                                840
71
         acatgoccac cgtgcccagc acctgaactc ctggggggac cgtcagtctt cctcttcccc
                                                                                900
72
         ccaaaaccca aggacacct catgatctcc cggacccctg aggtcacatg cgtggtggtg
                                                                                960
73
         gacgtgagcc acgaagaccc tgaggtcaag ttcaactggt acgtggacgg cgtggaggtg
                                                                               1020
74
         cataatgcca agacaaagcc gcgggaggag cagtacaaca gcacgtaccg tgtggtcagc
                                                                               1080
75
         gtcctcaccg tcctgcacca ggactggctg aatggcaagg agtacaagtg caaggtctcc
                                                                               1140
76
         aacaaagccc tcccagcccc catcgagaaa acaatctcca aagccaaagg gcagccccga
                                                                               1200
77
         gaaccacagg tgtacaccct gcccccatcc cgggatgagc tgaccaagaa ccaggtcagc
78
         ctgacctgcc tggtcaaagg cttctatccc agcgacatcg ccgtggagtg ggagagcaat
                                                                               1320
79
         gggcagccgg agaacaacta caagaccacg cctcccgtgc tggactccga cggctccttc
                                                                               1380
 80
         ttcctctaca gcaagctcac cgtggacaag agcaggtggc agcaggggaa cgtcttctca
                                                                               1440
 81
         tgctccgtga tgcatgaggc tctgcacaac cactacacgc agaagagcct ctccctgtct
                                                                               1500
 82
                                                                               1518
          ccgggtaaat gatctaga
 85 <210> SEQ ID NO: 3
 86 <211> LENGTH: 1518
 87 <212> TYPE: DNA
 88 <213> ORGANISM: Artificial Sequence
 89 <220> FEATURE:
 90 <223> OTHER INFORMATION: SYNTHETIC MOUSE-HUMAN CHIMERIC FUSION GENE
 91 <221> NAME/KEY: misc_feature
 92 <222> LOCATION: (13)..(807)
 93 <223> OTHER INFORMATION: MOUSE ANTI-HUMAN CD20 SCFV
 94 <221> NAME/KEY: C_region
```

95 <222> LOCATION: (808)..(1513)

RAW SEQUENCE LISTING DATE: 02/26/2002 PATENT APPLICATION: US/10/053,530 TIME: 12:23:09

```
96 <223> OTHER INFORMATION: HINGE CYSTEINES (826-829; 844-847; 853-856) MUTATED TO
         SERINES
97
         PROLINE TO SERINE MUTATION (880-883) IN CH2 DISRUPTS EFFECTOR FUN
98
         CTION
99
100 <400> SEQUENCE: 3
          aagcttgccg ccatggattt tcaagtgcag attttcagct tcctgctaat cagtgcttca
                                                                                 60
101
          gtcataattg ccagaggaca aattgttctc tcccagtctc cagcaatcct gtctgcatct
                                                                                120
102
          ccaggggaga aggtcacaat gacttgcagg gccagctcaa gtgtaagtta catgcactgg
                                                                                180
103
          taccagcaga agccaggatc ctcccccaaa ccctggattt atgccccatc caacctggct
                                                                                240
104
          tetggagtee etgetegett cagtggeagt gggtetggga cetettaete tetcacaate
                                                                                300
105
          agcagagtgg aggctgaaga tgctgccact tattactgcc agcagtggag ttttaaccca
                                                                                360
106
          cccacgttcg gtgctgggac caagctggag ctgaaagatg gcggtggctc gggcggtggt
                                                                                420
107
          ggatctggag gaggtgggag ctctcaggct tatctacagc agtctggggc tgagctggtg
                                                                                 480
108
          aggcctgggg cctcagtgaa gatgtcctgc aaggcttctg gctacacatt taccagttac
                                                                                 540
109
          aatatgcact gggtaaagca gacacctaga cagggcctgg aatggattgg agctatttat
                                                                                 600
110
          ccaggaaatg gtgatacttc ctacaatcag aagttcaagg gcaaggccac actgactgta
                                                                                 660
111
          gacaaatcct ccagcacagc ctacatgcag ctcagcagcc tgacatctga agactctgcg
                                                                                 720
112
          gtctatttct gtgcaagagt ggtgtactat agtaactctt actggtactt cgatgtctgg
                                                                                 780
113
          ggcacaggga ccacggtcac cgtctctgat caggagccca aatcttctga caaaactcac
                                                                                 840
114
          acatececae egtececage acetgaacte etggggggat egteagtett cetetteece
                                                                                 900
115
          ccaaaaccca aggacaccct catgatetee eggacecetg aggteacatg egtggtggtg
                                                                                 960
116
          gacgtgagcc acgaagaccc tgaggtcaag ttcaactggt acgtggacgg cgtggaggtg
                                                                                1020
117
          cataatgcca agacaaagcc gcgggaggag cagtacaaca gcacgtaccg tgtggtcagc
                                                                                1080
118
          gtcctcaccg tcctgcacca ggactggctg aatggcaagg agtacaagtg caaggtctcc
                                                                                1140
119
          aacaaagccc tcccagcccc catcgagaaa acaatctcca aagccaaagg gcagccccga
                                                                                1200
120
          gaaccacagg tgtacaccct gcccccatcc cgggatgagc tgaccaagaa ccaggtcagc
                                                                                1260
121
          ctgacctgcc tggtcaaagg cttctatccc agcgacatcg ccgtggagtg ggagagcaat
                                                                                1320
122
          gggcagccgg agaacaacta caagaccacg cctcccgtgc tggactccga cggctccttc
                                                                                1380
123
          ttcctctaca gcaagctcac cgtggacaag agcaggtggc agcaggggaa cgtcttctca
                                                                                1440
124
          tgctccgtga tgcatgaggc tctgcacaac cactacacgc agaagagcct ctccctgtct
                                                                                1500
125
                                                                                1518
          ccgggtaaat gatctaga
126
128 <210> SEQ ID NO: 4
129 <211> LENGTH: 1518
 130 <212> TYPE: DNA
 131 <213> ORGANISM: Artificial Sequence
 132 <220> FEATURE:
133 <223> OTHER INFORMATION: SYNTHETIC MOUSE-HUMAN CHIMERIC FUSION GENE
 134 <221> NAME/KEY: misc_feature
 135 <222> LOCATION: (13)..(807)
 136 <223> OTHER INFORMATION: MOUSE ANTI-HUMAN CD20 SCFV
 137 <221> NAME/KEY: C_region
 138 <222> LOCATION: (808)..(1513)
 139 <223> OTHER INFORMATION: HINGE CYSTEINES MUTATED TO SERINES (826-829; 844-847;
           853-856)
 140
           WILD TYPE CH2 AND CH3 DOMAINS MEDIATE EFFECTOR FUNCTIONS
 141
 142 <400> SEQUENCE: 4
           aagcttgccg ccatggattt tcaagtgcag attttcagct tcctgctaat cagtgcttca
                                                                                  60
 143
           gtcataattg ccagaggaca aattgttctc tcccagtctc cagcaatcct gtctgcatct
                                                                                 120
 144
           ccaggggaga aggtcacaat gacttgcagg gccagctcaa gtgtaagtta catgcactgg
                                                                                 180
 145
```

RAW SEQUENCE LISTING DATE: 02/26/2002 PATENT APPLICATION: US/10/053,530 TIME: 12:23:09

	output the terminal t	
140	taccagcaga agccaggate etececcaaa eeetggattt atgeeccate caacetgget 24	
146 147	tatagagtes stactegett cagtageagt gggtetggga cetettaele leleacaate so	
147	aggagagteg aggetgaaga tgctgccact tattactgcc agcagtggag ttttaacca	
	and getting gtgctggggc caagetggag ctgaaaqatg geggtggete gggeggtggt	
149 150	ggatctggag gaggtgggag ctctcaggct tatctacagc agtctggggc tgagctggtg	
151	aggetaggg cotcagtgaa gatgtootgo aaggottotg gotadadatt taccagttac	
151	antatagact gggtagagga gacacctaga cagggcctgg aatggattgg agctatttat	
152	graggaate stratactic ctacaatcag aagttcaagg gcaaggccac actgactgta	
154	gagaaatact ccagcacagc ctacatgcag ctcagcagcc tgacatctga ayactctgcg ,2	
155	gtotatttct gtgcaagagt ggtgtactat agtaactctt actggtactt cgatgtctgg	
156	The sagget according to the contract of the co	
157	agategggag enterceage acetgaacte etqqqqqqae egteagtett edictiode	
158	ggaaaaggaaaggat catgatctcc cqqacccctg aggtcacatg cgtggtggtg	
159	maget gagga acceangacco togget caag ttcaactggt acgtggacgg cglggagglg	
160	antontagen agacaaagee gegggaggag cagtacaaca geacglaceg lylygicage	
161	gtggtgacgg tcctgcacca ggactggctg aatggcaagg agtacaagtg caaggtctcc 111	
162	and an analog to consecut categagaaa acaateteea aageedadyy yeayeeeya 120	
163	grands and total accept deceecated eggetage tgadeaagad edayyteage 120	
164	atgractace tagtcasagg cttctatece agegaeateg cegiggagig gyayayeaat 132	
165	names again against a caagaccacg cotocogtgo tggactooga cygotootto 130	
166	thoutetaca graageteae egtggacaag agcaggtgge agcaggggad egtettetea 149	
167	tertagetes tegeteseer tetecacaac cactacacec agaagageer erectigeer 130	
168	cogggtaaat gatotaga	18
	210> SEQ ID NO: 5	
	211> LENGTH: 1524	
	212> TYPE: DNA	
173	213> ORGANISM: Artificial Sequence	
171	220~ FFATURE.	
175	223> OTHER INFORMATION: SYNTHETIC MOUSE HUMAN CHIMERIC FUSION GENE	
176	221> NAME/KEY: misc_feature	
177	222> LOCATION: (1)(796)	
178	223> OTHER INFORMATION: MOUSE ANTI HUMAN CD20 SCFV	
179	221> NAME/KEY: N_region	
180	222> LOCATION: (797)(864)	
181	223> OTHER INFORMATION: HUMAN IGA HINGE REGION	
182	221> NAME/KEY: C_region	
100	(222 TOCAMITON, 1865) (1518)	
184	2225 LOCATION: (803)(1310) 2223 OTHER INFORMATION: HUMAN IGG1 CH2 AND CH3 WILD TYPE FC DOMAIN	
185	AAAA GHOURNGE, 5	60
186	atgrattite aagtgeagat titeagette etgetaatea gigetteagt caladityee	20
187	agaggacaaa ttgttctctc ccaqtctcca gcaatcctgt ctgcatctcc aggggagaag	80
188	gtgagaatga cttggaggg cagctgaagt gtaagttaca tgcactggta ccagcagaag	40
189	ccaggatect eccecaaace etggatttat geeceateca acciggette tygagteeet	00
190	gotogottos atagosatag atotagasco tottaciolo idadaalday dagageggas	60
191	getgaagatg ctgccactta ttactgccag cagtggagtt ttaacccacc cacgureggu	20
192	getgggacca agetggaget gaaagatgge ggtggetegg geggtggtgg atetggagga	80
193	ggtgggaget eteaggetta tetacageag tetggggetg agelyglyag geelygiga.	40
194	transferance totoctocae goottotogo tacacattia coagitada lalyeaciyy	500
195	gtaaagcaga cacctagaca gggcctggaa tggattggag ctatttatcc aggaaatggt 6	, , , ,

RAW SEQUENCE LISTING DATE: 02/26/2002 PATENT APPLICATION: US/10/053,530 TIME: 12:23:09

```
gatacttcct acaatcagaa gttcaagggc aaggccacac tgactgtaga caaatcctcc
                                                                                660
196
                                                                                720
         agcacagect acatgcaget cagcagectg acatetgaag actetgeggt etatttetgt
197
         gcaagagtgg tgtactatag taactcttac tggtacttcg atgtctgggg cacagggacc
                                                                                780
198
         acggtcaccg tctctgatca gccagttccc tcaactccac ctaccccatc tccctcaact
                                                                                840
199
         ccacctaccc catctccctc atgcgcacct gaactcctgg ggggaccgtc agtcttcctc
                                                                                900
200
          ttccccccaa aacccaagga caccctcatg atctcccgga cccctgaggt cacatgcgtg
                                                                                960
201
          gtggtggacg tgagccacga agaccctgag gtcaagttca actggtacgt ggacggcgtg
                                                                               1020
202
          gaggtgcata atgccaagac aaagccgcgg gaggagcagt acaacagcac gtaccgtgtg
                                                                               1080
203
          gtcagcgtcc tcaccgtcct gcaccaggac tggctgaatg gcaaggagta caagtgcaag
                                                                               1140
204
          gtctccaaca aagccctccc agcccccatc gagaaaacaa tctccaaagc caaagggcag
                                                                               1200
205
          ccccgagaac cacaggtgta caccctgccc ccatcccggg atgagctgac caagaaccag
                                                                               1260
206
          gtcagcctga cctgcctggt caaaggcttc tatcccagcg acatcgccgt ggagtgggag
                                                                               1320
207
          agcaatgggc agccggagaa caactacaag accacgcctc ccgtgctgga ctccgacggc
                                                                               1380
208
          tecttettee tetacageaa geteacegtg gacaagagea ggtggeagea ggggaaegte
                                                                               1440
209 -
          ttctcatgct ccgtgatgca tgaggctctg cacaaccact acacgcagaa gagcctctcc
                                                                               1500
210
                                                                                1524
          ctgtctccgg gtaaatgatc taga
211
213 <210> SEQ ID NO: 6
214 <211> LENGTH: 711
215 <212> TYPE: DNA
216 <213> ORGANISM: Artificial Sequence
217 <220> FEATURE:
218 <223> OTHER INFORMATION: SYNTHETIC HUMAN PARTIAL FUSION GENE
219 <221> NAME/KEY: misc_feature
220 <222> LOCATION: (1)..(705)
221 <223> OTHER INFORMATION: HINGE CYSTEINES MUTATED TO SERINES (19-21; 37-39; 46-
222
          48)
223 <400> SEQUENCE: 6
          gatcaggage ecaaatette tgacaaaact cacacatece cacegteece ageacetgaa
                                                                                 . 60
224
          ctcctggggg gaccgtcagt cttcctcttc cccccaaaac ccaaggacac cctcatgatc
                                                                                 120
225
                                                                                 180
          teceggacee etgaggteae atgegtggtg gtggaegtga geeaegaaga eeetgaggte
226
          aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa gccgcgggag
                                                                                 240
227
          gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca ccaggactgg
                                                                                 300
228
          ctgaatggca aggagtacaa gtgcaaggtc tccaacaaag ccctcccagc ccccatcgag
                                                                                 360
229
          aaaacaatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac cctgccccca
                                                                                 420
230
          tecegggatg agetgaceaa gaaceaggte ageetgacet geetggteaa aggettetat
                                                                                 480
231
          cccagcgaca tcgccgtgga gtgggagagc aatgggcagc cggagaacaa ctacaagacc
                                                                                 540
232
          acgceteccg tgctggacte cgacggetec ttcttectet acagcaaget caccgtggac
                                                                                 600
233
                                                                                 660
          aagagcaggt ggcagcaggg gaacgtcttc tcatgctccg tgatgcatga ggctctgcac
234
                                                                                 711
          aaccactaca cgcagaagag cctctccctg tctccgggta aatgatctag a
237 <210> SEQ ID NO: 7
238 <211> LENGTH: 729
239 <212> TYPE: DNA
 240 <213> ORGANISM: Artificial Sequence
 241 <220> FEATURE:
 242 <223> OTHER INFORMATION: SYNTHETIC HUMAN PARTIAL FUSION GENE
 243 <221> NAME/KEY: N_region
 244 <222> LOCATION: (1)..(69)
 245 <223> OTHER INFORMATION: HUMAN IGA HINGE
 246 <221> NAME/KEY: C_region
```

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/053,530

DATE: 02/26/2002

TIME: 12:23:10

STATISTICS SUMMARY

PATENT APPLICATION: US/10/053,530

DATE: 02/26/2002 TIME: 12:23:10

Input Set : N:\Crf3\02132002\J053530.raw
Output Set: N:\CRF3\02262002\J053530.raw

Application Serial Number: US/10/053,530

Alpha or Numeric: Numeric

Application Class:

Application File Date: 01-17-2002

Art Unit: OIPE

Software Application: PatentIN3.0

Total Number of Sequences: 38 Total Nucleotides: 14732

Total Nucleotides: 14/32 Total Amino Acids: 4719 Number of Errors: 0 Number of Warnings: 0 Number of Corrections: 0

MESSAGE SUMMARY